



## PATENT COOPERATION TREATY

PCT

16 NOV 2004

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 021139.WO		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/NL 03/00357	International filing date (day/month/year) 15.05.2003	Priority date (day/month/year) 29.05.2002	
International Patent Classification (IPC) or both national classification and IPC H01G9/20			
Applicant STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand  03.12.2003		Date of completion of this report  26.08.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840		Authorized Officer  Visentin, A  Telephone No. +49 30 25901-762 	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/NL 03/00357**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-5 as originally filed

**Claims, Numbers**

1-11 as originally filed

**Drawings, Sheets**

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/NL 03/00357**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-11
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-11
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1.) In this report reference is made to the following documents, cited in the International Search Report:

**D1: TENG K.F. ET AL: 'Metallization of solar cells with ink jet printing and silver metallo-organic inks', IEEE TRANSACTIONS ON COMPONENTS, HYBRIDS, AND MANUFACTURING TECHNOLOGY, Vol. 11, No. 3, 1 September 1988, pages 291-297**

2.) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

Indeed document D1 discloses a method for applying a layer of a second material to a layer of a crystalline first material comprising the steps of:

- a) providing a layer of a crystalline first material on a horizontal substrate (see D1, Figure 1; page 291, right column)
- b) providing a liquid containing the second material (see D1: paragraph: "Synthesis of metallo-Organic Compounds", pages 291-292)
- c) providing a dispensing means to be disposed horizontally and provided with outlet openings (see D1, Figure 1; page 291, right column)
- d) disposing the dispensing means above the layer of crystalline material and
- e) displacing the dispensing means and the layer of crystalline material relative to each other in lateral horizontal direction of the dispensing means, while supplying the liquid with the second material to the dispensing means (see D1, Figures 1, 2; page 291, right column; paragraph: "Ink Jet Fabrication of Solar Cells").

Therefore the subject-matter of claim 1 is different from the teaching of D1 only in that a layer of nanocrystalline material is provided in step a) and the dispensing means is of tubular form having lateral outlet openings (in D1 the form of the dispenser is not clearly given).

It is considered that said features are merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

Indeed there is no reason why the method of D1 could not be used to apply a layer of a second material to a nanocrystalline first material instead than to a crystalline layer.

Moreover no distinctive features are disclosed, that would be specifically adapted to

such particular application of the method.

The same argument is valid for the particular form of the dispensing means.

Consequently it is considered that the skilled man would be capable to adapt the method of document D1 to come to the subject-matter of claim 1 without the need of an inventive step (Art. 33(3) PCT).

3.) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 2 does not involve an inventive step in the sense of Article 33(3) PCT.

Indeed document D1 discloses an apparatus for applying a layer of a second material to a layer of a crystalline first material comprising:

dispensing means to be disposed horizontally and provided with outlet openings (see D1, Figure 1; page 291, right column);

a liquid container and conduit means for carrying liquid from the liquid container to the dispensing means (see D1, Figures 1, 2; page 293, right column, last paragraph).

Therefore the subject-matter of claim 2 is different from the teaching of D1 only in that the dispensing means is of tubular form having lateral outlet openings (in D1 the form of the dispenser is not clearly given). It is considered that said feature is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed. With similar arguments as in part 2.) above for claim 1 it is considered that the skilled man would be capable to adapt the apparatus of document D1 to come to the subject-matter of claim 2 without the need of an inventive step (Art. 33(3) PCT).

4.) Dependent claims 3, 4, 5, 6, 7, 8, 9, 10 and 11 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows:

the subject-matter of claims 3-6 is already disclosed in document D1 (see D1, Figure 1; page 291, right column);

the features of the claims 7-11 are considered as representing merely one of several straightforward design possibilities for the apparatus from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

Consequently these claims cannot add anything inventive to the subject-matter of claim 2, on which these claims depend (Art. 33(3) PCT).

5.) All claims 1-11 meet the requirements of industrial applicability of Art. 33(4) PCT.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/NL 03/00357

6.) The relative term "nanocrystalline material" used in claims 1, 2 has no well-recognised meaning and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear, Article 6 PCT.

7.) The features described in dependent claim 3 are considered essential to the definition of the apparatus of the invention.

Indeed the apparatus of claim 2 should be adapted to carry out the method of claim 1, but it is not provided of means to displace the dispensing means and the substrate relative to each other in lateral horizontal direction.

Moreover in claim 2 the conduit means should be capable of supplying the liquid to the dispensing means while the dispensing means and the substrate are moved relative to each other in lateral horizontal direction.

Since independent claim 2 does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

8.) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.